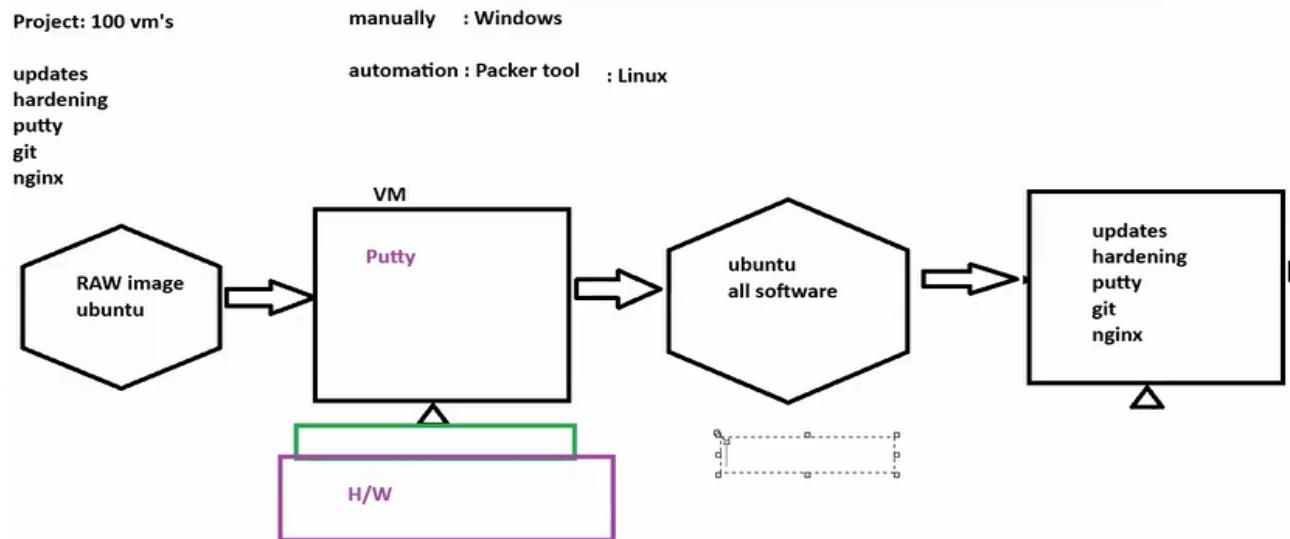
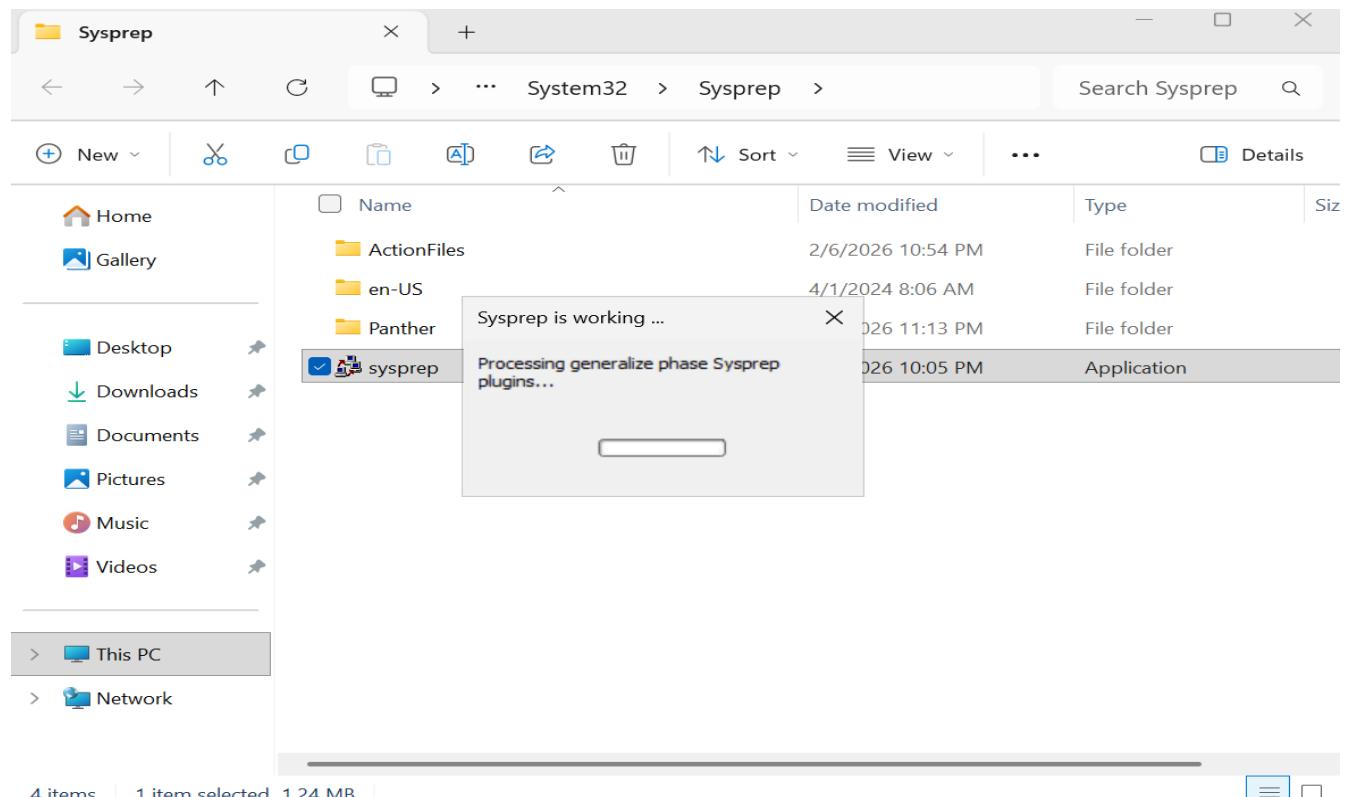


Image Creation



✓ Create Image Manually using windows

- ✓ Next login it and download any software (Putty) and install it.
- ✓ Next search for Run to shut down hardware components for custom image.
- ✓ **Run→sysprep→select sysprep (system preparation tool)→shutdown**



- ✓ Next go to Vm on portal we can see Vm from Running to stopped.

- ✓ Next click on Capture on same Vm top middle→select Create image

Create an image

Subscription: Azure subscription 1

Resource group *: Urgo1

Instance details:

Region: (US) Central US

Share image to Azure compute gallery: Yes, share it to a gallery as a VM image version.
 No, capture only a managed image.

Automatically delete this virtual machine after creating the image:

Gallery details:

Target Azure compute gallery *: (new) Imagegallery
[Create new](#)

Operating system state: Generalized: VMs created from this image require hostname, admin user, and other VM related setup to be completed on first boot
 Specialized: VMs created from this image are completely configured and do not require parameters such as hostname and admin user/password

⚠️ Capturing a virtual machine image will make the virtual machine unusable. This action cannot be undone.

Target VM image definition *: (new) Vmdef
[Create new](#)

Version details:

Version number *: 01.22.33

[Review + create](#) [< Previous](#) [Next : Tags >](#)

✓ Custom image is created Manually by using Windows below.

Home > Microsoft.Compute-CaptureVM-20260211161502 | Overview

01.22.33 (Imagegallery/Vmdef/01.22.33) ⚡ ☆ ...  How do I troubleshoot issues with this VM image version? What are the metrics for this VM image version? +1 X

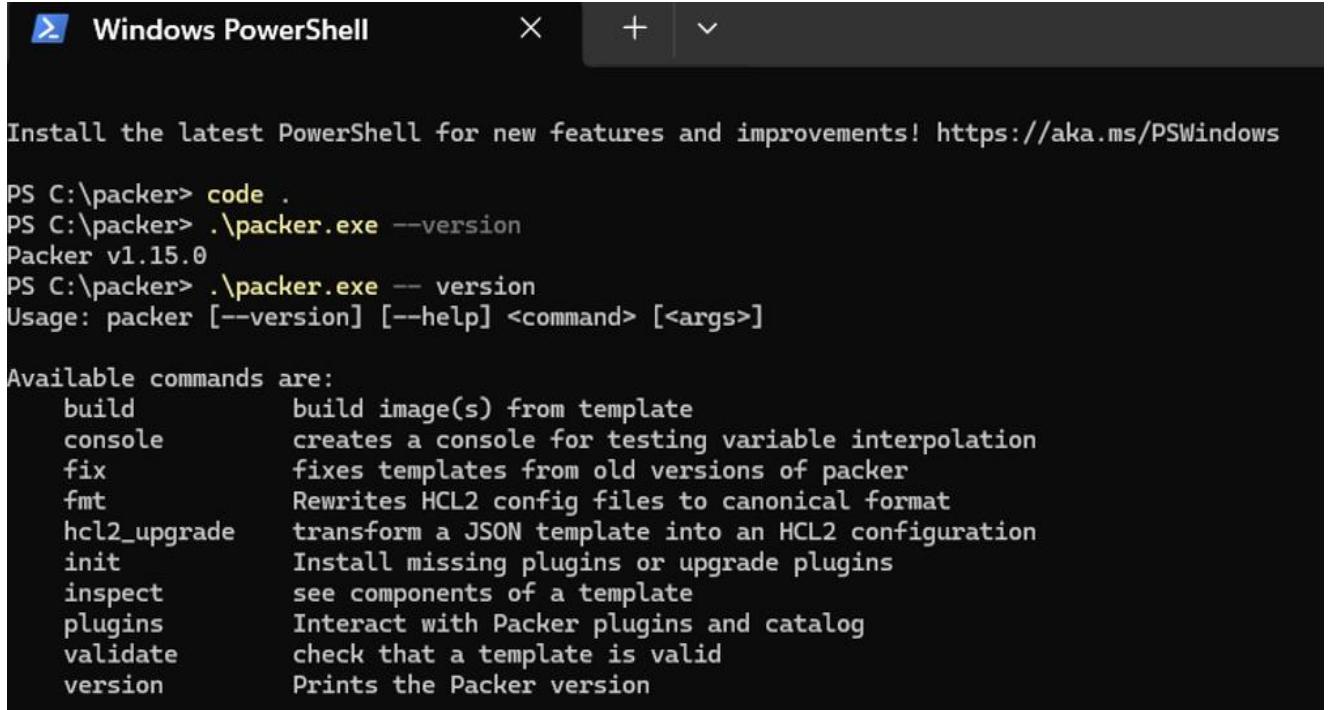
VM image version

Search + Create VM + Create VMSS 🗑 Delete ⏪ Refresh ⏴ Give feedback

Overview		Essentials	
Activity log	Resource group (move): Urgo1	Azure compute gallery	: Imagegallery
Access control (IAM)	Status	VM image definition	: Vmdef
Tags	Location	Replication status	: Completed
Diagnose and solve problems	Subscription (move)	Replication mode	: Full
Resource visualizer	: Azure subscription 1	Confidential OS disk encr...	: -
Settings	Subscription ID	Encryption type	: Platform-managed key
Automation	: 5d75b66d-66bf-44e0-8d7e-7e61e4b043d7	End of life date	: -
Help		Exclude from latest	: No
		Lock deleting Replicated...	: Yes
		Storage account type	: Standard HDD LRS

Tags ([edit](#)) : [Add tags](#)

- Let's automate same process by using Packer tool and create Custom image of Linux machine



```

Windows PowerShell

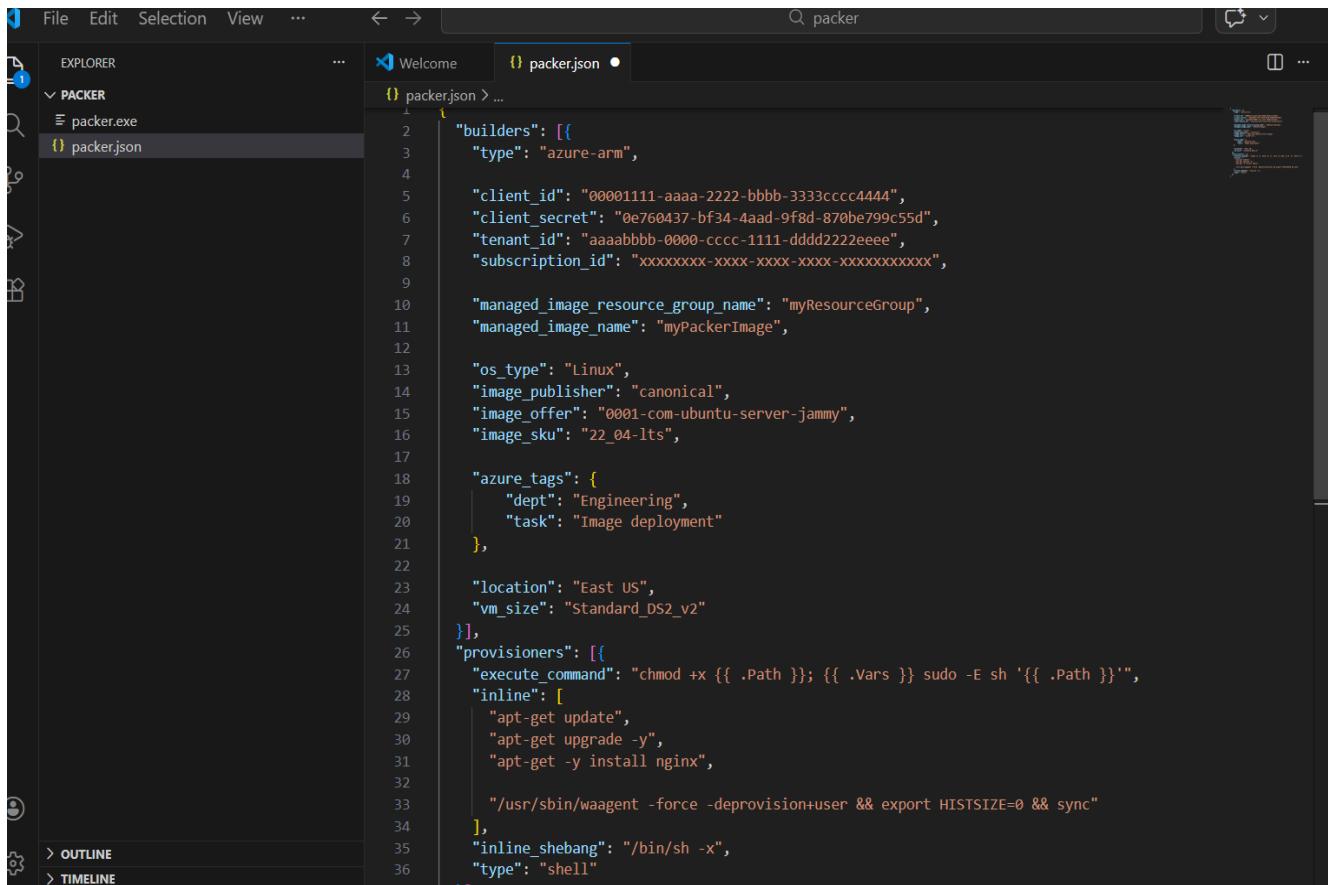
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\packer> code .
PS C:\packer> .\packer.exe --version
Packer v1.15.0
PS C:\packer> .\packer.exe -- version
Usage: packer [--version] [--help] <command> [<args>]

Available commands are:
  build          build image(s) from template
  console        creates a console for testing variable interpolation
  fix            fixes templates from old versions of packer
  fmt            Rewrites HCL2 config files to canonical format
  hcl2_upgrade   transform a JSON template into an HCL2 configuration
  init           Install missing plugins or upgrade plugins
  inspect        see components of a template
  plugins        Interact with Packer plugins and catalog
  validate       check that a template is valid
  version        Prints the Packer version

```

✓ Code . it will navigate to VS Code



```

{
  "builders": [
    {
      "type": "azure-arm",
      "client_id": "00001111-aaaa-2222-bbbb-3333cccc4444",
      "client_secret": "0e760437-bf34-4aad-9f8d-870be799c5d",
      "tenant_id": "aaaabbbb-0000-cccc-1111-dddd2222eeee",
      "subscription_id": "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxx",
      "managed_image_resource_group_name": "myResourceGroup",
      "managed_image_name": "myPackerImage",
      "os_type": "Linux",
      "image_publisher": "canonical",
      "image_offer": "0001-com-ubuntu-server-jammy",
      "image_sku": "22_04-lts",
      "azure_tags": {
        "dept": "Engineering",
        "task": "Image deployment"
      },
      "location": "East US",
      "vm_size": "Standard_DS2_v2"
    }
  ],
  "provisioners": [
    {
      "execute_command": "chmod +x {{ .Path }}; {{ .Vars }} sudo -E sh '{{ .Path }}'",  

      "inline": [
        "apt-get update",
        "apt-get upgrade -y",
        "apt-get -y install nginx",
        "/usr/sbin/waagent -force -deprovision+user && export HISTSIZE=0 && sync"
      ],
      "inline_shbang": "/bin/sh -x",
      "type": "shell"
    }
  ]
}

```

- ✓ In Vs code there is **folder packer.exe**
- ✓ Click on it and **choose new file** and give name **packer.json**
- ✓ File should be in **Json format only.**
- ✓ Next for image creation code go to below and choose **Linux format**

 Microsoft Learn
https://learn.microsoft.com › azure › linux › imaging ...

Overview of creating Linux images for Azure

Create an image that can be configured for use by multiple VMs. You can set the hostname, add an admin user, and perform other tasks during first boot. [Read more](#)

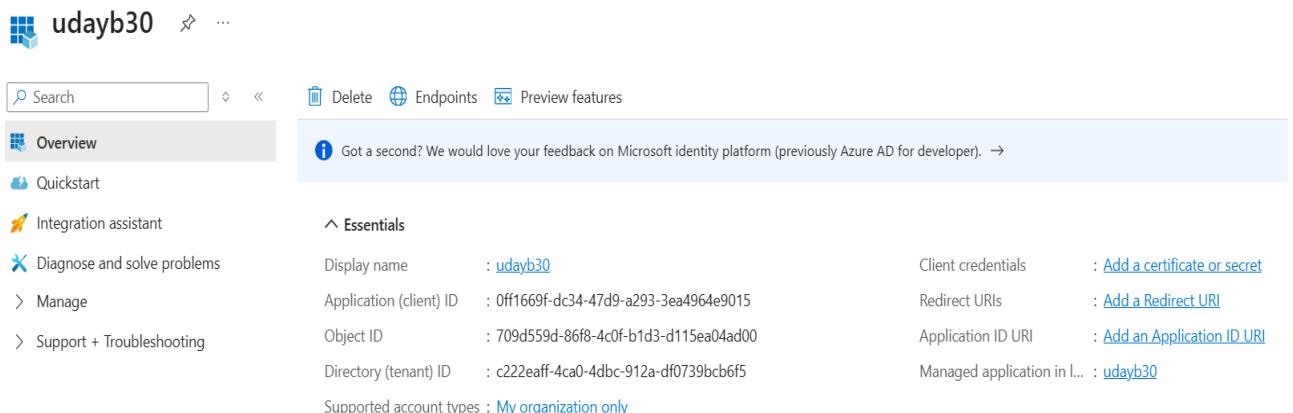
- ✓ **Copy Linux code and paste on VS code**

packer => image creation

to create service account

navigate to Azure cloud => search for Microsoft entra id => manage => app registration => New registration|

- ✓ Next Create **service account** for that follow steps above
- ✓ After creating account, we will get below details
- ✓ Choose **client_id, client_secret, tenant_id, subscription_id** copy these from below portal and paste in VS code.



Setting	Value	Notes
Display name	udayb30	
Application (client) ID	0ff1669f-dc34-47d9-a293-3ea4964e9015	Client credentials : Add a certificate or secret
Object ID	709d559d-86f8-4c0f-b1d3-d115ea04ad00	Redirect URIs : Add a Redirect URI
Directory (tenant) ID	c222eaff-4ca0-4dbc-912a-df0739bcb6f5	Application ID URI : Add an Application ID URI
Supported account types	My organization only	Managed application in I... : udayb30

- ✓ Shown below

```
✓ "client_id": "0ff1669f-dc34-47d9-a293-3ea4964e9015",
✓ "client_secret": "YCV8Q~aoJXxDq1LipYclEPYusC3UgNZM-PkMjbFa",
✓ "tenant_id": "c222eaff-4ca0-4dbc-912a-df0739bcb6f5",
✓ "subscription_id": "5d75b66d-66bf-44e0-8d7e-7e61e4b043d7",
```

- ✓ For **client_secret** go to **manage** → **certificates & secrets** follow below.

✓ Client secret id below (Copy Value)

udayb30 | Certificates & secrets

Search Got feedback?

Integration assistant Diagnose and solve problems

Manage

Branding & properties Authentication (Preview)

Certificates & secrets

Token configuration API permissions Expose an API App roles Owners Roles and administrators Manifest

Client secrets (1) Federated credentials (0)

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

+ New client secret

Description	Expires	Value	Copied	secret ID
secret	10/08/2026	YCV8Q~aoJxuDq1LipYclEPYusC3UgNZ...	Copied	5dfe5b10-3054-4239-b6f6-c3021d73c06a

✓ Next our free subscription ID copy and paste.

➤ Right now, **Authentication** is completed

- But **Udayb30 user need Authorisation on subscription, for that we should give some role like Owner or etc...**

✓ Go to IAM (Identity Access Management) below

Home > Subscriptions > Azure subscription 1

Subscriptions

Default Directory (reddylkp2004@gmail.onmicrosoft.com)

+ Add Manage Policies ...

Global administrators can manage all subscriptions in this list by updating their policy setting [here](#).

View list of subscriptions for which you have role-based access control (RBAC) permissions to manage Azure resources. To view subscriptions for which you have billing access, [click here](#). Showing subscriptions in Default Directory directory. Don't see a subscription? [Switch directories](#)

S... Subscriptions : Filtered (1 of 1)

My role == all

Status == all

+ Add filter

Subscription name ↑

Azure subscription 1 | Access control (IAM)

Subscription

Search Add Download role assignments Edit columns Refresh Delete Feedback

Overview Activity log Access control (IAM)

Tags Diagnose and solve problems Security Resource visualizer Events Resource groups Resources Cost Management Cost analysis

Action required: As of August 31, 2024, Azure classic administrator roles (along with Azure classic resources, Azure Service Manager) are retired and are no longer supported. If you still have active Co-Administrator or Service Administrator role assignments, convert these roles to Azure RBAC immediately. [Learn more](#)

Check access Role assignments Roles Deny assignments Classic administrators

My access

View my access

Check access Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#)

Check access

Azure subscription 1 | Access control (IAM) ☆

Subscription

Search + Add Download role assignments

Key Overview

Log Activity log

User Access control (IAM)

Tags

Add role assignment

Add co-administrator

Add custom role

of August 31, 2024, Azure longer supported. If you still immediately. [Learn more](#)

Add role assignment

Role * Members * Conditions * Review + assign

A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. [Learn more](#)

Copilot can help pick a role

Job function roles Privileged administrator roles

Grant privileged administrator access, such as the ability to assign roles to other users.

Can a job function role with less access be used instead?

<input type="text"/> Search by role name, description, permission, or ID		Type : All	Category : All
Name ↑↓	Description ↑↓		
Owner	Grants full access to manage all resources, including the ability to assign roles to other users.		
Contributor	Grants full access to manage all resources, but does not allow you to assign roles to other users.		
Access Review Operator Service Role	Lets you grant Access Review System app permissions to discover and review access reviews.		
Azure IoT Operations Onboarding	User can Azure arc connect and deploy Azure IoT Operations securely.		
Azure Resilience Management Drills Admin...	Administrator Role of Azure Resilience Management Drills Service		

[Review + assign](#)

[Previous](#)

[Next](#)

✓ Below added user Udayb30 and I want to give owner role

Role Members Conditions * Review + assign

Selected role Owner

Assign access to User, group, or service principal
 Managed identity

Members [+ Select members](#)

Name	Object ID	Type
udayb30	f28ed8b3-ef51-414b-bb06-69eff71a4b96	App

Description

Role Members **Conditions** Review + assign

Selected role Owner

- What user can do**
- Allow user to only assign selected roles to selected principals (fewer privileges) ⓘ
 - Allow user to assign all roles except privileged administrator roles Owner, UAA, RBAC (Recommended) ⓘ
 - Allow user to assign all roles (highly privileged) ⓘ
- ⚠️** Owner is a privileged admin role that grants privileged administrator access, such as the ability to assign roles to or narrow the permissions of this role to least privilege.

✓ To run packer, we need Authentication with authorisation then
only we can execute, we have done all below.

```
✓ "client_id": "0ff1669f-dc34-47d9-a293-3ea4964e9015",  
  "client_secret": "YCV8Q~aoJXxDq1LipYclEPYusC3UgNZM-PkMjbFa",  
  "tenant_id": "c222eaff-4ca0-4dbc-912a-df0739bcb6f5",  
  "subscription_id": "5d75b66d-66bf-44e0-8d7e-7e61e4b043d7",
```

✓ Below give

- Resource group name**
- Image name**
- OS type**
- Location**
- VM size**

```

Welcome          packer.json

packer.json > [] builders > {} 0 > abc vm_size

  "builders": [
    {
      "type": "azure-arm",
      "client_id": "0ff1669f-dc34-47d9-a293-3ea4964e9015",
      "client_secret": "YCV8Q~aoJXxDq1LipYc1EPYusC3UgNZM-PkMjbFa",
      "tenant_id": "c222eaff-4ca0-4dbc-912a-df0739bcb6f5",
      "subscription_id": "5d75b66d-66bf-44e0-8d7e-7e61e4b043d7",
      "managed_image_resource_group_name": "Uday-Rg",
      "managed_image_name": "myudaylinux-Image",
      "os_type": "Linux",
      "image_publisher": "canonical",
      "image_offer": "0001-com-ubuntu-server-jammy",
      "image_sku": "22_04-lts",
      "azure_tags": [
        {
          "dept": "Engineering",
          "task": "Image deployment"
        }
      ],
      "location": "East US",
      "vm_size": "Standard_B1s"
    ]
  ],
  "provisioners": [
    {
      "execute_command": "chmod +x {{ .Path }}; {{ .Vars }} sudo -E sh '{{ .Path }}'",  

      "inline": [
        "apt-get update",
        "apt-get upgrade -y",
        "apt-get -y install nginx",
        "/usr/sbin/waagent -force -deprovision+user && export HISTSIZE=0 && sync"
      ],
      "inline_shebang": "/bin/sh -x",
      "type": "shell"
    }
  ]
}

```

- ✓ Make sure everything is done save first **Ctrl+s**
- ✓ Then open command prompt and execute below

```

PS C:\packer> .\packer.exe inspect .\packer.json
Packer Inspect: JSON mode
Variables:
<No variables>

Builders:
azure-arm

Provisioners:
shell

Note: If your build names contain user variables or template
functions such as 'timestamp', these are processed at build time,
and therefore only show in their raw form here.
PS C:\packer>

```

- ✓ Below is complete code from start to build

```
PS C:\WindowsPowerShell> .\packer --version
Packer v1.15.0
PS C:\WindowsPowerShell> .\packer --version
Usage: packer [--version] [--help] <command> [<args>]

Available commands are:
  build          build image(s) from template
  console        creates a console for testing variable interpolation
  fix           fixes templates from old versions of packer
  fmt            Rewrites HCL2 config files to canonical format
  hcl2_upgrade   transform a JSON template into an HCL2 configuration
  init           Install missing plugins or upgrade plugins
  inspect        see components of a template
  plugins        Interact with Packer plugins and catalog
  validate       check that a template is valid
  version        Prints the Packer version

PS C:\WindowsPowerShell> .\packer inspect .\packer.json
Packer Inspect: JSON mode
Variables:
<No variables>

Builders:
azure-arm

Provisioners:
powershell

Note: If your build names contain user variables or template
functions such as 'timestamp', these are processed at build time,
and therefore only show in their raw form here.
PS C:\WindowsPowerShell> .\packer build .\packer.json
azure-arm: output will be in this color.

==> azure-arm: Running builder ...
==> azure-arm: Creating Azure Resource Manager (ARM) client ...
==> azure-arm: ARM Client successfully created
```

- ✓ For the first time before packer build, we should install Plugin.
- ✓ If we don't it asks to install plugin,then enter below
- ✓ ./packer plugins install github.com/hashicorp/azure

```
$ packer plugins install github.com/hashicorp/azure
```

- ✓ Next run build command, packages will build automatically and custom image we see in resource group (Uday-Rg).

✓ Image is Created.

➤ Automate Windows (Image Creation)

```
≡ packer.exe    ⌂ packer.json X
{} packer.json > [ ] builders > {} 0
1  {
2    "builders": [
3      {
4        "type": "azure-arm",
5
6        "client_id": "bbd8d2fa-5fc7-40f5-97a4-ea93ed316618",
7        "client_secret": "IxS8Q~hzGAvegg_Bkx1U02nCXAgo9Mjge4mapbZP",
8        "tenant_id": "c222eaff-4ca0-4dbc-912a-df0739bcb6f5",
9        "subscription_id": "5d75b66d-66bf-44e0-8d7e-7e61e4b043d7",
10
11       "managed_image_resource_group_name": "UcentralUSRg",
12       "managed_image_name": "UdayPackerImage",
13
14       "os_type": "Windows",
15       "image_publisher": "MicrosoftWindowsServer",
16       "image_offer": "WindowsServer",
17       "image_sku": "2016-Datacenter",
18
19       "communicator": "winrm",
20       "winrm_use_ssl": true,
21       "winrm_insecure": true,
22       "winrm_timeout": "5m",
23       "winrm_username": "packer",
24
25       "azure_tags": {
26         "dept": "Engineering",
27         "task": "Image deployment"
28       },
29
30       "build_resource_group_name": "UcentralUSRg",
31       "vm_size": "Standard_D2s_v3"
32     ],
33     "provisioners": [
34       {
35         "type": "powershell",
36         "inline": [
37           "Add-WindowsFeature Web-Server",
38           "while ((Get-Service RdAgent).Status -ne 'Running') { Start-Sleep -s 5 }",
39           "while ((Get-Service WindowsAzureGuestAgent).Status -ne 'Running') { Start-Sleep -s 5 }",
40           "& $env:SystemRoot\\System32\\Sysprep\\Sysprep.exe /oobe /generalize /quiet /quit",
41           "while($true) { $imageState = Get-ItemProperty HKLM:\\SOFTWARE\\Microsoft\\Windows\\Current
42         ]
43       }
44     ]
45   }
46 }
```

```
Windows PowerShell + | v

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\packer> code .
PS C:\packer> .\packer.exe --version
Packer v1.15.0
PS C:\packer> .\packer.exe -- version
Usage: packer [--version] [--help] <command> [<args>]

Available commands are:
  build          build image(s) from template
  console        creates a console for testing variable interpolation
  fix            fixes templates from old versions of packer
  fmt            Rewrites HCL2 config files to canonical format
  hcl2_upgrade   transform a JSON template into an HCL2 configuration
  init           Install missing plugins or upgrade plugins
  inspect        see components of a template
  plugins        Interact with Packer plugins and catalog
  validate       check that a template is valid
  version        Prints the Packer version

PS C:\packer> .\packer.exe inspect .\packer.json
Packer Inspect: JSON mode
Variables:
<No variables>

Builders:
azure-arm

Provisioners:
powershell

Note: If your build names contain user variables or template
functions such as 'timestamp', these are processed at build time,
and therefore only show in their raw form here.
PS C:\packer> .\packer.exe build .\packer.json
azure-arm: output will be in this color.

==> azure-arm: Running builder ...
==> azure-arm: Creating Azure Resource Manager (ARM) client ...
==> azure-arm: ARM Client successfully created
```

- ✓ Now we no need to install plugin just run build package will be created.

```
Windows PowerShell      X + ▾ - □ ×
==> azure-arm: Deleting Virtual Machine deployment and its attached resources...
==> azure-arm: Deleted -> Microsoft.Compute/virtualMachines : 'pkrvmqh3j2lxjn7'
==> azure-arm: Deleted -> Microsoft.Network/networkInterfaces : 'pkrnigh3j2lxjn7'
==> azure-arm: Deleted -> Microsoft.Network/virtualNetworks : 'pkrvnqh3j2lxjn7'
==> azure-arm: Deleted -> Microsoft.Network/publicIPAddresses : 'pkripqh3j2lxjn7'
==> azure-arm: Deleted -> Microsoft.Network/networkSecurityGroups : 'pkrsqgh3j2lxjn7'
==> azure-arm: Deleted -> Microsoft.Compute/disks : '/subscriptions/5d75b66d-66bf-44e0-8d7e-7e61e4b043d7/resourceGroups/UcentralUSRg/providers/Microsoft.Compute/disks/pkrosqh3j2lxjn7'
==> azure-arm: Removing the created Deployment object: 'pkrdpqh3j2lxjn7'
==> azure-arm:
==> azure-arm: Deleting KeyVault created during build
==> azure-arm: Deleted -> Microsoft.KeyVault/vaults : 'pkrvvh3j2lxjn7'
==> azure-arm: Removing the created Deployment object: 'kvpkrdpqh3j2lxjn7'
==> azure-arm:
==> azure-arm: The resource group was not created by Packer, not deleting ...
Build 'azure-arm' finished after 10 minutes 37 seconds.

==> Wait completed after 10 minutes 38 seconds

==> Builds finished. The artifacts of successful builds are:
--> azure-arm: Azure.ResourceManagement.VMImage:

OSType: Windows
ManagedImageResourceGroupName: UcentralUSRg
ManagedImageName: UdayPackerImage
ManagedImageId: /subscriptions/5d75b66d-66bf-44e0-8d7e-7e61e4b043d7/resourceGroups/UcentralUSRg/providers/Microsoft.Compute/images/UdayPackerImage
ManagedImageLocation: centralus

PS C:\packer>
```